

Message Text

CONFIDENTIAL

PAGE 01 TOKYO 07942 020927Z

ACTION OES-07

INFO OCT-01 EA-10 ISO-00 CIAE-00 DODE-00 NSAE-00
NSCE-00 SSO-00 ICAE-00 INRE-00 SOE-02 AID-05
CEA-01 COME-00 EB-08 H-01 INR-10 INT-05 L-03
OMB-01 PM-05 SP-02 SS-15 STR-07 TRSE-00 ACDA-12
/095 W

-----128390 020936Z /11

O 020918Z MAY 78

FM AMEMBASSY TOKYO

TO SECSTATE WASHDC IMMEDIATE 7621

INFO DOE WASHDC IMMEDIATE

DOE GERMANTOWN MD IMMEDIATE

C O N F I D E N T I A L TOKYO 07942

E.O. 11652: GDS

TAGS: ENRG, TECH, JA

SUBJECT: PRIME MINISTER FUKUDA'S VISIT--COOPERATION ON
PHOTOSYNTHESIS METHOD FOR HYDROGEN PRODUCTION

REF: (A) STATE 109336, (B) TOKYO 7513

1. WE HAVE BEEN TRYING TO UNFATHOM WHERE PHOTOSYNTHESIS
IDEA CAME FROM. WITH HELP FROM MOFA, SCICOUNS LOCATED
DR. YUKIO SATO OF SCIENCE AND TECHNOLOGY AGENCY, WHO WAS
INSTRUMENTAL IN BRINGING IDEA TO TOP-LEVEL ATTENTION.
SATO IN TURN IDENTIFIED DR. KAZUO SHIBATA AT PHYSICAL
CHEMISTRY RESEARCH INSTITUTE AS BEING IN CHARGE OF
15-20 MAN RESEARCH GROUP WHICH HAS BEEN WORKING ON
PHOTOSYNTHESIS FOR PAST 7-8 YEARS. SHIBATA WORKED FOR
PROF. MELVIN CALVIN AT BERKELEY AND IS CLOSE ASSOCIATE OF
DR. ANTHONY SAN PIETRO AT UNIVERSITY OF INDIANA. LATTER
IS ALMOST CERTAINLY FAMILIAR IN DEPTH WITH SHIBATA'S
RESEARCH. SAN PIETRO IS EXPECTED TO ARRIVE IN TOKYO ON
MAY 5 FOR PERIODIC TECHNICAL VISIT UNDER NSF AUSPICES.

CONFIDENTIAL

CONFIDENTIAL

PAGE 02 TOKYO 07942 020927Z

2. CONCEPT FOR PRODUCING HYDROGEN BY PHOTOSYNTHESIS
SEEMS TO INVOLVE IRRADIATING PLANTS OR BACTERIA IN SALT
WATER MEDIUM USING HYDROGENASE ENZYME TO REDUCE HYDROGEN
IONS TO ELEMENTAL HYDROGEN. ACCORDING TO SATO, THERE
MAY BE 130 DIFFERENT VARIETIES OF BACTERIA OR PLANTS WHICH
PRODUCE NATURAL ENZYME. CONVERSION EFFICIENCY EXPECTED
TO BE 10 PER CENT, BUT WE COULD NOT GET DEFINITION OF WHAT

PROCESS THE EFFICIENCY VALUE APPLIED TO. ALTERNATIVE
PROCESS IS COMBINED PHOTOLYSIS AND ELECTROLYSIS.
SYNTHETIC OR NATURAL CHLOROPLASTS ARE FORMED INTO
SEMIPERMEABLE MEMBRANE, WHICH IS IRRADIATED WITH SUNLIGHT.
APPLICATION OF VOLTAGE DIFFERENCE ACROSS MEMBRANE IS SAID
TO CAUSE HYDROGEN TO BE EVOLVED.

3. ABOVE DESCRIPTIONS ARE VERY ROUGH AND MAY BE
INACCURATE. WE HAVE ASKED STA TO OBTAIN COPIES OF
TECHNICAL PAPERS FROM DR. SHIBATA, BUT IN INTERIM, WE
THINK DR. SAN PIETRO IS BEST SOURCE OF INFO. ALSO,
DR. MITSUI AT U. OF MIAMI MAY BE GOOD SOURCE; HE HAS BEEN
WORKING ALONG SAME LINES AS SHIBATA, ACCORDING TO A
1975 PAPER WE HAVE.

4. WHEN WE MENTIONED TO DR. SATO THAT PHOTOSYNTHESIS
WORK SEEMED TO BE AT EARLY STAGE AND PROBABLY NOT
CONDUCTIVE TO LARGE SCALE PROJECT-TYPE COOPERATION, HE
AGREED. APPARENTLY, ENTHUSIASM OF HIGHER OFFICIALS FOR
SOMETHING NEW IN U.S.-JAPAN S&T RELATIONS CARRIED
IDEA TO ITS PRESENT LEVEL OF ATTENTION. UNTIL FURTHER
TECHNICAL DETAILS CAN BE OBTAINED, WE SUGGEST CAUTION
ABOUT SPECIFIC COOPERATIVE EFFORT ON PHOTOSYNTHESIS
METHOD OF HYDROGEN PRODUCTION, ALTHOUGH THERE ARE
PLENTY OF OTHER OPPORTUNITIES IN GENERAL FIELD OF SOLAR
ENERGY FOR COOPERATION BETWEEN U.S. AND JAPAN. SHERMAN
CONFIDENTIAL

CONFIDENTIAL

PAGE 03 TOKYO 07942 020927Z

CONFIDENTIAL

NNN

Message Attributes

Automatic Decaptioning: X
Capture Date: 01 jan 1994
Channel Indicators: n/a
Current Classification: UNCLASSIFIED
Concepts: SCIENTIFIC COOPERATION, PRODUCTION, MINISTERIAL VISITS, HYDROGEN
Control Number: n/a
Copy: SINGLE
Draft Date: 02 may 1978
Decaption Date: 01 jan 1960
Decaption Note:
Disposition Action: RELEASED
Disposition Approved on Date:
Disposition Case Number: n/a
Disposition Comment: 25 YEAR REVIEW
Disposition Date: 20 Mar 2014
Disposition Event:
Disposition History: n/a
Disposition Reason:
Disposition Remarks:
Document Number: 1978TOKYO07942
Document Source: CORE
Document Unique ID: 00
Drafter: n/a
Enclosure: n/a
Executive Order: GS
Errors: N/A
Expiration:
Film Number: D780186-0583
Format: TEL
From: TOKYO
Handling Restrictions: n/a
Image Path:
ISecure: 1
Legacy Key: link1978/newtext/t197805100/aaaadhpl.tel
Line Count: 94
Litigation Code IDs:
Litigation Codes:
Litigation History:
Locator: TEXT ON-LINE, ON MICROFILM
Message ID: d3314693-c288-dd11-92da-001cc4696bcc
Office: ACTION OES
Original Classification: CONFIDENTIAL
Original Handling Restrictions: n/a
Original Previous Classification: n/a
Original Previous Handling Restrictions: n/a
Page Count: 2
Previous Channel Indicators: n/a
Previous Classification: CONFIDENTIAL
Previous Handling Restrictions: n/a
Reference: 78 STATE 109336, 78 TOKYO 7513
Retention: 0
Review Action: RELEASED, APPROVED
Review Content Flags:
Review Date: 10 may 2005
Review Event:
Review Exemptions: n/a
Review Media Identifier:
Review Release Date: n/a
Review Release Event: n/a
Review Transfer Date:
Review Withdrawn Fields: n/a
SAS ID: 2511521
Secure: OPEN
Status: NATIVE
Subject: PRIME MINISTER FUKUDA'S VISIT--COOPERATION ON PHOTOSYNTHESIS METHOD FOR HYDROGEN PRODUCTION
TAGS: ENRG, TECH, JA, (FUKUDA, TAKEO)
To: STATE
Type: TE
vdkgvwkey: odb://SAS/SAS.dbo.SAS_Docs/d3314693-c288-dd11-92da-001cc4696bcc
Review Markings:
Sheryl P. Walter
Declassified/Released
US Department of State
EO Systematic Review
20 Mar 2014
Markings: Sheryl P. Walter Declassified/Released US Department of State EO Systematic Review 20 Mar 2014